VSOP AO4 PROPOSAL COVER SHEETS

DEADLINE : 2 October, 2000
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 30 September 2000

(2) Proposal title : Subparsec-scale **B** Field Structure of BL Lac Objects

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(5) Proposal Abstract :

VSOP polarization images at 5 GHz are now available for four BL Lac objects: 0735+178, OJ287, 1334–127, and 1803+784. Each of these observations has led to new and unexpected results that have furthered our understanding of the compact radio structure of these sources. We propose here 5 GHz VSOP polarization observations of an additional 13 strongly polarized BL Lacertae objects. The resulting images would provide valuable new information about the physical origin of the transverse magnetic fields that are characteristic of the VLBI jets of these objects, the highly polarized knots that previous 5 GHz VSOP polarization observations have shown to dominate the ground-based core polarization, and the weaker intrinsic polarization of the 5-GHz cores.

(6) Proposal Category (indicate all that apply):

Object type:
☑ AGN, ☐ Maser, ☐ Stellar, ☐ Pulsar, ☐ Other :

Observation type:
☑ Continuum, ☐ Spectral Line, ☑ Polarization, ☐ Time critical,
☐ Phase-reference, ☐ Other :

(7) Number of proposed experiments

An 'experiment' is one or more observations of one source at a fixed HALCA set-up. A request to observe the same source at 1.6 GHz and separately at 5 GHz requires two columns to be filled in in item (8) below. A request to observe the same source with HALCA simultaneously observing at 1.6 GHz and 5 GHz requires one column to be filled in. Multi-epoch observations of the same source at the same frequency – a 'monitoring experiment' – requires only one column to be filled in. Suggested observing dates, especially for for time-critical and monitoring experiments, should be specified in item (11).

The number of experiments in this proposal is: 13

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	1823+568	1749+096	1538+149	0823+033
Alternative name				
RA(J2000) (hh mm ss.ssss)	18 24 07.1	17 51 32.8	15 40 49.5	08 25 50.3
Dec(J2000) (dd mm ss.sss)	56 51 01.5	09 39 00.7	14 47 45.8	03 09 24.5
Observing frequency band (GHz)	5	5	5	5
Continuum observations:				
Standard VSOP freq. channels?	☑	☑	☑	☑
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.2	1.5	1.0	2.1
Correlated flux (mJy)	700	900	600	1500
Ground Radio Telescopes:				
Suggested array given at Item (11)?	☑	☑	☑	☑
GRT observing mode:				
128Mbps LCP (standard)	☐	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☑	☑	☑	☑
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☑	☑	☑	☑
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related VSOP proposal code(s)	v057,w016	v057,w016	v057,w016	v057,w016

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name (*Jhhmm±ddmm*)	1418+546	0814+425	0300+471	0745+241
Alternative name				
RA(J2000) (hh mm ss.ssss)	14 19 46.6	08 18 16.0	03 03 35.2	07 48 36.1
Dec(J2000) (dd mm ss.ssss)	54 23 14.8	42 22 45.4	47 16 16.3	24 00 24.1
Observing frequency band (GHz)	5	5	5	5
Continuum observations:				
Standard VSOP freq. channels?	☑	☑	☑	☑
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.5	1.0	1.7	1.2
Correlated flux (mJy)	700	500	900	600
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
GRT observing mode:				
128Mbps LCP (standard)	☐	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☑	☑	☑	☑
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☑	☑	☑	☑
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related AO1 proposal code(s)	v057,w016	v057,w016	v057,w016	v057,w016

	Experiment 9	Experiment 10	Experiment 11	Experiment 12
Source name (*Jhhmm±ddmm*)	0048–097	0119+115	0256+075	2131–021
Alternative name				
RA(J2000) (hh mm ss.ssss)	00 50 41.3	01 21 41.6	02 59 27.1	21 34 10.3
Dec(J2000) (dd mm ss.ssss)	-09 29 05.2	11 49 50.4	07 47 39.6	-01 53 17.2
Observing frequency band (GHz)	5	5	5	
Continuum observations:				
Standard VSOP freq. channels?	☑	☑	☑	☑
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.2	1.6	0.6	1.8
Correlated flux (mJy)	600	900	560	1200
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☑	☑
GRT observing mode:				
128Mbps LCP (standard)	☐	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☑	☑	☑	☑
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☑	☑	☑	☑
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related AO1 proposal code(s)	v057,w016	v057,w016	v057,w016	v057,w016

	Experiment 13	Experiment 14	Experiment 15	Experiment 16
Source name (*Jhhmm±ddmm*)	2254+074			
Alternative name				
RA(J2000) (hh mm ss.ssss)	22 57 17.3			
Dec(J2000) (dd mm ss.ssss)	07 43 12.3			
Observing frequency band (GHz)	5			
Continuum observations:				
Standard VSOP freq. channels?	☑	☐	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.4			
Correlated flux (mJy)	250			
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☐	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☐	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☑	☐	☐	☐
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☑	☐	☐	☐
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related AO1 proposal code(s)	v057,w016			

(9) VSOP spacecraft observing mode (see Section 3 and Table 2 of the VSOP Proposer's Guide):

☑ 2 channel x 16 MHz, 2-bit (Standard mode),

☐ Other:

Phase calibration tones:

☑ On (Standard continuum mode),

☐ Off (Standard spectral line mode)

(Include justification of any non-standard choice at (11) below)

(10) Assistance with preparation of ground telescope schedule files:

☐ VSOG assistance requested, ☑ Consultation desired, ☐ No assistance required

(11) Additional notes to the scheduler :

Our preferred array is VLBA + one or more large ground antennas (phased VLA, EF, WSRT). This type of array has been proven effective for previous VSOP polarization observations. It is desirable to observe with the phased VLA, since this automatically provides the integrated polarization measurements required for absolute calibration of the polarization position angles.

The ground schedule must include observations of a compact source for use in the polarization angle calibration.

(12) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Refer to the VSOP Announcement of Opportunity for detailed instructions. Preprints and reprints will not be forwarded to the Scientific Review Committee.

EITHER e-mail the completed LaTeX file to submit@vsop.isas.ac.jp and send two paper copies of the complete proposal to:

VSOP Observing Proposals
VSOP Science Operations Group
Institute of Space and Astronautical Science
3-1-1 Yoshinodai, Sagamihara
Kanagawa 229-8510 JAPAN

OR e-mail the completed LaTeX Cover Sheets file and, in a separate e-mail, the postscript file of the scientific and technical justification, to submit@vsop.isas.ac.jp

Information from the Cover Sheets of scheduled proposals will be made available from the VSOP WWW site.

Proposals must be received at ISAS by 2 October 2000